A FUNGUS OF THE GENUS *NOCARDIA* CULTIVATED FROM HEART BLOOD

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The fungus here briefly described was cultivated from blood withdrawn from the heart at the autopsy on a patient who died in May, 1920, at Accra, of an obscure complaint. The notes of the case are as follows:—

The deceased was a native man, about twenty-five years of age, regarded clinically as possibly suffering from encephalitis lethargica, and said to have been ill six days before death. He was stated to have shown paretic symptoms of the arms, and to have had convulsive seizures during which there was opisthotonus. Consciousness was lost temporarily during the illness, but was recovered before death.

At the autopsy, which was made on the 14th of May, 1920, eight hours after death, the body was found to be well nourished; post-mortem rigidity was present in the legs and arms but absent from the neck. There was an old scar over the external aspect of the right upper arm immediately above the elbow joint, an old circular cicatrix about the size of a sixpenny piece over the left malar bone, and a small punctured wound at the back of the neck on a line with the thyroid cartilage: the latter wound was oozing blood, and may have been inflicted after death when placing the body in the coffin.

On examining the internal organs, both lungs were found to be affected with broncho-pneumonia: the left lung was adherent to the

parietal wall by recent fibrinous formations. Brain: meninges somewhat congested; blood vessels in sulci engorged; no pus on the surface nor at the base. Heart: blood fluid; no abnormality noted. Cultures were made with blood obtained from the heart by puncturing the organ after searing its surface and taking every precaution to avoid contamination: in these cultures the *Nocardia* was grown. Digestive track, spleen, kidney, and liver: congested, but otherwise showed no apparent pathological condition.

The organism cultivated from the heart blood of this case grew well on blood agar and 'nasgar' at 37° C. and at the temperature of the laboratory, about 26° C., producing a somewhat slowly spreading growth which was very firmly adherent to the medium. The colonies were at first smooth and dome-shaped, but later became puckered and opaque in the middle and radially striated and semi-transparent at the periphery. After a few days an efflorescence appeared on the older parts of the growth which in the earliest cultures was abundant and blue, and in later sub-cultures was scanty and grey or white. The medium sublying the growth was not stained. The organism grew both aerobically and anaerobically, but slowly and rather feebly under the latter conditions. The cultures had no distinctive odour.

When examined microscopically the growth was seen to be composed of freely branching non-septate hyphae about 1 μ or less in diameter. In old cultures many of the hyphae were more or less fragmented, and the ends of some of the filaments were slightly thickened and club-shaped. The organism was Gram-positive but not acid fast.

It grew well on blood-agar and 'nasgar,' as already stated. When first isolated it grew scantily on agar, but subcultures were not successful. It did not grow on glucose agar or maltose agar. On potato it produced an abundant whiteish growth which developed a brown or grey-brown efflorescence and stained the medium dark brown. On blood serum it grew well, causing no liquefaction but staining the medium dark brown. It did not grow on gelatin, nor in ordinary broth and peptone water.

Its qualitative bio-chemical reactions were tested, and no change was produced in any of the following:—Arabinose, Rhamnose (iso-dulcite), Galactose, Glucose, Laevulose, Mannose, Lactose,

Maltose, Saccharose, Raffinose, Amylum, Dextrin, Glycogen, Inulin, Amygdalin, Helicin, Phlorrhizin, Salicin, Glycerol, Erythrol, Adonitol, Dulcitol, Inosite, Mannitol, Sorbitol, and Litmus milk.

A guinea-pig inoculated intraperitoneally with an emulsion of a culture appeared to be unaffected. This experiment, however, was not made until seven months after the organism was isolated.

The organism showed the characters of a fungus of the Genus *Nocardia*, but so far as we are able to ascertain, does not correspond with any of the numerous species already described. Although it was obtained in cultures made from blood aspirated from the heart, it is not possible to say if the organism is pathogenic to man, but the fact that its growth was almost restricted to potato and media containing either blood serum or ascitic fluid is perhaps significant. We propose for this fungus the name *Nocardia cruoris*.

SUPPLEMENTARY NOTE ON A CASE OF BRONCHOMONILIASIS IN A NATIVE OF THE GOLD COAST

A short time ago (1921) we described a fungus of the Genus *Monilia* which we had isolated from a case of bronchomoniliasis at Accra. The fungus belonged to the *Tropicalis* group of Castellani and Chalmers, and closely resembled in its bio-chemical reactions *M. nivea*, but we could not say at that time whether it was actually the same or distinct, because we were unable to test its action on Raffinose.

We are now able to fill in this gap in our description, and to state that neither acid nor gas is produced in Raffinose. The fungus, at the time this reaction was tested, had been isolated and maintained in cultures in the laboratory for about eight months, but a re-examination of its other bio-chemical reactions showed that they had not appreciably altered. The organism, therefore, cannot be regarded as *M. nivea*, and as previously pointed out, it differs from all the other members of the *Tropicalis* group; it must, therefore, be regarded as a new species, for which we propose the name *Monilia accraensis*.

In support of the view that the failure of the fungus to ferment Raffinose was not due to the loss of this property after isolation from the human host, it may be added that we have recently obtained the same organism from the sputum of another native patient at Accra, and that when tested immediately after isolation it produced neither acid nor gas in this medium.

REFERENCE

Macfie, J. W. S., and Ingram, A. (1921). Bronchomoniliasis Complicating Pulmonary Tuberculosis in a native of the Gold Coast, West Africa. *Annals of Trop. Med. & Parasitol.*, XV, pp. 53-58.